

**Intech Mini Digital Pocket Dosimeter
(MPD-1501)
User's Manual**



1. Introduction

The MPD-1501 Intech Micro Digital Pocket Dosimeter is a simple, compact, pen type X & γ dosimeter designed as direct replacement for pen type quartz dosimeter. It is ideal for use in nuclear power stations, university laboratories, cancer hospitals and other industries dealing with radiation. Immunity to electromagnetic radiation from mobile phones in close proximity, very low power consumption with battery lasting for over 1 year, when used for 8 hours a day and simplicity of operation are the outstanding features of the dosimeter.

2. Features:

- **Semiconductor diode detector**
- **Convenient Pen-type design**
- **Six-digit LCD display to cover 1 μ Sv to 1 Sv**
- **Light weight < 70 gms**
- **Simple 1-button operation**
- **Very low power design – 1 year battery life**
- **Excellent immunity to Cell phone EMI**
- **Storage of the last accumulated value of dose prior to switch off.**

3. Specifications

Radiation detected : X and γ radiation
 Display Units : Direct readout of dose equivalent in Sv
 Range Dose : 1 μ Sv to 1 Sv
 Energy response : $\pm 25\%$ from 60keV to 1.25 MeV (^{137}Cs)
 Angular response : $\pm 15\%$ up to $\pm 60^\circ$ for ^{137}Cs
 Accuracy : $^{137}\text{Cs} \pm 10\%$
 Dose rate linearity : $< \pm 20\%$ upto 1 Sv/h
 Overload : 10 times the range, on exceeding 1Sv,
 : display indicates 'ovr' for over range

Electrical and Mechanical

Power supply : Single Li Coin CR2354
 Battery Life : About 5000 Hrs of continuous operation
 Control : on/off control by a single button;
 Size : Pen type enclosure 28mm x 110mm x 12mm
 Weight : < 70 g including battery / clip
 Case material : high impact ABS

Environmental

Operating temperature: 0 $^\circ\text{C}$ to 45 $^\circ\text{C}$
 Humidity : 20% to 90% RH, non-condensing
 Vibration : IEC 61526: 2g, 15min., 10-33Hz
 Shock : 1.5m drop on each surface on to concrete
 EMI/EMC : Exceeds IEC 61526

4. OPERATION

Principle of operation: The dosimeter is basically an integrating device for indicating the cumulative dose. The pulses from the detector are counted in a counter and the counter is read every 5 secs, multiplied by the calibration factor and displayed as 'Dose' in μSv . No range changing is required as the dosimeter has a six-digit display covering 6 decades from 1 μS to 1 Sv. Thus the dosimeter is simple to read in μSv without any confusion for a lay man.

Switching 'On' and 'Off': Press the button on the front panel for a sec and release. The instrument will switch on into the display check mode by turning on all the segments of the LCD for a few seconds. **If any LCD segment fails to turn on, the dosimeter should not be used and returned to the manufacturer for service.** After about five secs, the display indicates the dose recorded during the previous use, which was recorded just before the dosimeter was switched off. After another five seconds display resets to '0000' and the dosimeter is ready for use. To switch off the instrument press the switch and hold it for five secs; the unit will switch 'off' after storing the last dose value. Thus even if the dosimeter is inadvertently switched off without noting down the reading, it is still possible to get back the reading by switching it on again.

Overload condition: The dosimeter is x10 overload compatible. i.e., the dosimeter will not show any under estimate when the dosimeter is exposed to an overload of up to 10 times the maximum range (i.e. up to 10 Sv). As soon as the range of 1Sv is exceeded, the display will indicate "ovr" (over range).

Changing the battery: The battery used is CR2354, Li coin cell with a shelf life of 5 years. Pull the cap out at the end of the enclosure. The battery can be dislodged by gently pulling the tag coming out from side of the battery. Slip the new battery with the +ve polarity on the top side.

Warning: Every effort has been made to shield the dosimeter from radio frequency interference, but it is susceptible to very high radio frequency fields that exist near radars, cell phone towers, high power communication and welding equipment. The user is advised to exercise caution and not to use the dosimeter in such high radio frequency environments.

For any queries / servicing / requirement of spare batteries contact:

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